CLAIMS

What is claimed is:

1.   A method for predicting the profitability of an insurance policy comprising the

steps of gathering policyholder data including premium and loss data for storing in a

database, identifying external data sources directed to at least one of business level

data and household demographics data, the external data sources having a plurality of

external variables to be used in predicting the profitability of the insurance policy,

associating the external variables with the policyholder data, evaluating the associated

external variables against the policyholder data to identify the individual external

variables predictive of the insurance policy's profitability, and creating a statistical

model based on the individual external predictive variables.

2.   The method of claim 1 further comprising the step of creating the statistical

model utilizing a multivariate statistical approach.

3.   The method of claim 1 further comprising the steps of creating individual

records in the database for each policyholder and populating each individual record

with premium and loss data, business name, address and zip code for each

policyholder and the associated external variables.

4.   The method of claim 1 further comprising the step of associating at least one

individual external variable with the individual records based on a unique data key

associated with at least one external data source.

5.   The method of claim 1 further comprising the step of normalizing the

policyholder data in the database.

6.   The method of claim 5 wherein the normalizing step further comprises the step

of premium manualization, the step of loss trending and the step of loss capping.

7. The method of claim 1 wherein the external data sources include external variables for at least one of geographic factors, business stability and weather patterns.

8. The method of claim 1 wherein the step of evaluating the external variables further comprises the step of examining the external variables for cross-correlation against one another in order to eliminate repetitive external variables.

9. The method of claim 1 further comprising the step of dividing the data in the database into a training data set for developing the statistical model, a testing data set for refining the statistical model and a validation data set for evaluating the predictiveness of the statistical model.

10. The method of claim 1 wherein the step of identifying the external variables predictive of an insurance policy's profitability further includes the steps of normalizing the policyholder data, calculating for each policyholder the loss ratio based on the normalized policyholder data, defining a subgroup from the policyholder data, calculating a cumulative loss ratio for the subgroup and performing a statistical analysis to identify statistical relationships between individual external variables and the cumulative loss ratio for the subgroup.

11. The method of claim 10 wherein the identified predictive external variables are examined for cross-correlations against one another.

12. The method of claim 10 wherein the statistical model is created using multivariate methods to produce coefficients for each of the external predictive variables and the coefficients represent the contribution of the each of the external predictive variables to an overall score.

13. A method for creating a statistical model that generates a score representative of the profitability of an insurance policy for at least one of a new policyholder and an

-36-

existing policyholder, comprising the steps of gathering historical policyholder data,

including loss and premium data, identifying external data sources having a plurality

of external variables, each external variable having a value, applying actuarial

transformation to the policyholder data to generate working data, calculating a loss

ratio for each policyholder in the database based on the working data, calculating a

cumulative loss ratio for a defined group of policyholders in the database, performing

a statistical analysis that investigates the relationship of each external variable and the

cumulative loss ratio for the defined group to identify external variables that are

predictive of the profitability of the insurance policy, and utilizing the predictive

external variables identified in the previous step to develop a statistical model that

generates a score predictive of the profitability of the insurance policy.

14.   The method of claim 13 wherein the statistical model is used to score at least

one of an existing policyholder and a new policyholder in order to determine the

premium for a commercial insurance policy.

15.   The method of claim 13 further comprising the steps of manualizing the

premium data, actuarially modifying long tail losses and capping large losses.

16.   The method of claim 13 further comprising the step of binning together similar

values of an external variable having multiple values.

17.   The method of claim 13 further comprising the step of examining the external

variables for cross-correlation against one another in order to eliminate repetitive

external variables.

18.   The method of claim 13 further comprising the step of dividing the data in the

database into a training data set for developing the statistical model, a testing data set

for refining the statistical model and a validation data set for evaluating the

predictiveness of the statistical model.

19.   The method of claim 13 wherein the statistical model is created using multivariate methods to produce coefficients for each of the external predictive variables and the coefficients represent the contribution of the each of the external predictive variables to the score.

20.   A system for predicting the profitability of an insurance policy comprising a database for storing policyholder data including premium and loss data, means for processing data from external data sources having a plurality of external variables to be used in predicting the profitability of the insurance policy, means for evaluating the external variables against the policyholder data to identify the external variables predictive of an insurance policy's profitability and means for creating a statistical model based on the external predictive variables that generates a score representative of the profitability of the insurance policy.

21.   The system of claim 20 wherein the means for creating the statistical model includes a software application for performing a multivariate statistical method on the external predictive variables to generate a coefficient for each external predictive variable, each coefficient representing the contribution of each external predictive variable to the score.

22.   The system of claim 21 wherein the multivariate method includes at least one of multiple regression and generalized linear modeling.

23.   A system for creating a statistical model that generates a score representative of the profitability of an insurance policy for at least one of a new policyholder and an existing policyholder comprising a database of policyholder data, a means for accessing external data sources having multiple external variables, predictive means for sorting through the external variables to identify individual external variables that are predictive of the profitability the insurance policy and means for performing a

-38-

statistical method on the external predictive variables to generate a coefficient for each external predictive variable, each coefficient representing the contribution of each external predictive variable to the score generated by the statistical model.

24. The system of claim 23 wherein the means for performing a statistical method comprises a software application that includes algorithms for performing at least one of multivariate statistical methods, clustering methods, decision tree techniques and neural network techniques.

25. A method of performing risk-based pricing of an insurance policy comprising the steps of receiving a request for a price on an insurance policy, and evaluating the risk associated with issuing the insurance policy based on a profitability score derived from a statistical model generated with historical policyholder premium and loss data and external predictive variables identified from external data sources independent of internal policy holder data of an insurance company issuing the insurance policy.

26. The method of claim 25 wherein the external data sources include external variables for at least one of geographic factors, business stability and weather patterns.

27. The method of claim 25 wherein the external data sources include at least one of business level data and household demographics data

28. The method of claim 25 further comprising the step of examining the external predictive variables for cross-correlation against one another in order to eliminate repetitive external variables.

29. The method of claim 25 wherein the step of identifying the external predictive variables further includes the steps of normalizing the policyholder data, calculating for each policyholder the loss ratio based on the normalized policyholder data, defining a subgroup from the policyholder data, calculating a cumulative loss ratio for

the subgroup and performing a statistical analysis to identify statistical relationships between individual external predictive variables and the cumulative loss ratio for the subgroup.

30.   The method of claim 28 wherein the identified external predictive variables are examined for cross-correlations against one another.

31.   The method of claim 25 wherein the statistical model is created using multivariate methods to produce coefficients for each of the external predictive variables and the coefficients represent the contribution of the each of the external predictive variables to an overall score.

32.   The method of claim 25 further comprising the step of dividing the policyholder data into a training data set for developing the statistical model, a testing data set for refining the statistical model and a validation data set for evaluating the predictiveness of the statistical model.

33.   A system for performing risk-based pricing of an insurance policy comprising means for receiving a request for a price on an insurance policy and means for generating a profitability score derived from a statistical model generated with external variables identified from external data sources independent of internal policy holder data of an insurance company issuing the insurance policy.

34.   The system of claim 33 wherein the external data sources include at least one of business level data and household demographics data.